

Remarks

The Examiner rejected all claims under 35 USC §112 as containing limitations not supported by the description. Applicants amended the claims to obviate these rejections and submit the claimed "ionomer membrane is without equilibration and has been without equilibration since inception" is adequately supported in paragraphs 10 and 20 of the specification. Specifically, Applicants described the dry ionomer membrane to exclude membranes that have been soaked in any solution such as water or acidic solution. Moreover, the dry ionomer membrane includes a sheet that has not been boiled, soaked in any liquid, or otherwise treated (i.e. equilibrated in an acidic solution).

Applicants do not agree with the Examiner's suggestion that membranes during construction are exposed to moisture at some point but even assuming it to be true, being exposed to moisture is far different from being equilibrated, or soaked in a solution, as defined in the specification. Because all of the cited references teach membranes being soaked in a solution, Applicants submit the amended claims are in condition for allowance.

The Examiner rejected all claims under 35 USC §103 as being obvious over, in some combination of one or more of the following, EP 1 037 041 A2 ("041 patent") in view of U.S. Patent No. 5,650,054 to Shen, U.S. Patent No. 4,879,005 to Fray, U.S. Patent No. 4,272,353 to Lawrance et al., U.S. Patent No. 6,319,293 to Debe et al., or U.S. Patent Serial No. 2001/0050230 A1 to Surampudi. Based on the foregoing amendments and following remarks, Applicants submit all claims should be allowed.

All claims specify that the ionomer membrane is without equilibration and has been without equilibration since inception. All references teach away from such a limitation because all are directed to membranes that have been soaked. Soaking is needed for equilibration.

The office action states that the '041 patent never specifies whether the membrane is wet or dry during sensor construction and the office action appears to rely upon the other references to infer a membrane that is dry during sensor construction. However, none of the references teach or suggest a dry ionomer membrane where the membrane is without equilibration and has been without equilibration since inception.

Fray's col. 2, lines 39-42 disclose a membrane that is soaked in water and later the membrane is, as the Examiner correctly pointed out in the office action, air dried. Since the membrane was soaked in water prior to being air dried, all of which occur before or during sensor construction, Fray's membrane teaches away from Applicants' dry membrane that is without equilibration and has been without equilibration since inception. No where in Fray does it suggest a membrane without equilibration since inception.

Similar to Fray, Shen discloses a membrane that is soaked in a solution and then laid out to air dry prior to fabrication (see col. 15, lines 20-35). Since the membrane was soaked in solution prior to being air-dried, all of which occur before sensor fabrication, Shen's membrane teaches away from Applicants' dry ionomer membrane that is without equilibration and has been without equilibration since inception. No where in Shen does it suggest a membrane without equilibration since inception.

Similar to Fray and Shen, Debe discloses a membrane that is wetted by being boiled in water and then dried (see col. 22, lines 65-col. 23, line 12). Since the membrane was soaked in solution prior to being air-dried, all of which occur before sensor construction, Debe's membrane teaches away from Applicants' dry ionomer membrane that is without equilibration and has been without equilibration since inception. No where in Debe does it suggest a membrane without equilibration since inception.

Similar to Fray, Shen, and Debe, Surampudi discloses a membrane that is stored wet to maintain its desired properties (see page 8, paragraphs 126-128). Since the membrane was stored wet, Surampudi's membrane teaches away from Applicants' dry ionomer membrane that is without equilibration and has been without equilibration since inception. No where in Surampudi does it suggest a membrane without equilibration since inception.

Similar to Fray, Shen, Debe, and Surampudi, Lawrance discloses a membrane that is soaked in a solution prior to fabrication with any sensor. The Examiner is correct to point out that the dry membrane is roughened. However, the membrane does not remain dry until sensor construction. "Following the preparation of the electrode, that is, the solid polymer electrolyte membrane base member having at least one abraded surface and a finely-divided catalytic material fixed upon the braded surface [this is where the membrane is roughened], the membrane was placed in de-ionized water...and then brought to a boil." Col. 12, lines 1-50). Since the membrane was boiled, it was equilibrated, as it needs to be in a solution in order to be boiled. Lawrance does not mention any sensor construction or application of the sensor in between the steps of providing the dry ionomer membrane and soaking the membrane in water. In fact, Lawrance does not mention a sensor or sensor construction anywhere. No where in Lawrance does it suggest a membrane without equilibration since inception.

A prima facie case of obviousness requires that the Examiner show that the proposed combination teaches all of the claimed elements, that there is motivation for the combination, and that there is a reasonable expectation of success for the combination. Because no reference alone or in any combination with one another relates to an ionomer membrane that is without equilibration, the proposed combination cannot include the claimed ionomer membrane. When no reference refers to such claimed features, the motivation to combine the stated references in a manner to include Applicant's

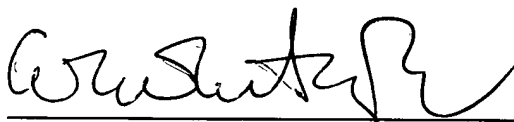
claimed feature is also absent. The reasonable expectation of success prong is moot given Examiner's failure to satisfy the "all-elements" and motivation prongs.

Moreover, because all cited references teach away from Applicants' invention, and because there is no disclosure, teaching, or suggestion in any reference to use a membrane that has been without equilibration since inception, the combination of the references do not arrive at Applicants' claimed invention without some modification to the combination.

Even assuming that somehow the cited references may be combined, in order for a reference to be properly modified in a rejection under 35 USC §103, there must be some teaching or suggestion to make the modification. Without some teaching or suggestion, one skilled in the art lacks the motivation to make the modification. As discussed above, all of the references not only lack a teaching or suggestion for a dry ionomer membrane, but also teach away from Applicants' membrane that is without equilibration since inception. It can hardly be argued or presumed that Applicants' dry ionomer membrane would be obvious in view of such opposite teachings.

Based on the foregoing, Applicants' submit that all claims are allowable and that all rejections be withdrawn.

Respectfully submitted,



Wesley W. Whitmyer, Jr., Registration No. 33,558
David Chen, Registration No. 46,613
Attorneys for Applicants
ST.ONGE STEWARD JOHNSTON & REENS LLC
986 Bedford Street
Stamford, CT 06905-5619
203 324-6155